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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/060,203	02/01/2002	Shinji Matsuo	1752-0154P	7503
2292	7590	06/30/2004	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH				
PO BOX 747				
FALLS CHURCH, VA 22040-0747				
			ART UNIT	PAPER NUMBER
			1774	

DATE MAILED: 06/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/060,203

Applicant(s)

MATSUO ET AL.

Examiner

Camie S Thompson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 29 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

1. Applicant's amendment and accompanying remarks filed April 29, 2004 have been acknowledged.
2. Examiner acknowledges amended claims 1, 6 and 7.
3. Examiner acknowledges cancelled claim 5.
4. Examiner acknowledges newly added claims 8 and 9.
5. The rejection of claims 1-3 and 6-7 under 35 U.S.C. 102(b) as being anticipated by Hatwar et al., U.S. Patent Number 6,475,648 is withdrawn due to applicant's argument.
6. The rejection of claims 1 and 4 under 35 U.S.C. 103(a) as being unpatentable over Hatwar et al., U.S. Patent Number 6,475,648 in view of Shi et al., U.S. Patent Number 5,593,788 is withdrawn due to applicant's argument.

### *Claim Rejections - 35 USC § 102*

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

8. Claims 1-4, 6-7 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Hung et al., U.S. Patent Number 6,069,442.

Hung discloses an organic electroluminescent device comprising an anode, an organic hole transporting layer, an organic luminescent layer, an electron transporting layer and a cathode (see abstract and column 2, lines 1-9). Additionally, the reference discloses that the hole transporting layer comprises N-N'-bis-(1-naphthyl)-N-N'-diphenylbenzidine as per instant claims 1-4, 6-7

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and 9 (see column 5, lines 12-15). Column 3, lines 42-60 of the Hung reference disclose that the luminescent layer comprises tris(8-quinolinato) aluminum as per the instant claims. The Hung reference does not disclose the initial luminescent attenuation. However, this is a physical property of the device that comprises N-N'-bis-(1-naphthyl)-N-N'-diphenylbenzidine for the hole transporting layer and tris(8-quinolinato) aluminum for the luminescent layer. The operating time in which the initial luminescences attenuates 10% would be expected to exceed 100 hours in a live test, as this would be inherent. Claims 1, 6-7 and 9 are product-by-process claims. Even though product-by-process claims are limited and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claims is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior art was made by a different process. See MPEP 2113. The purifying of the crude tertiary amine by sublimation or distillation by the reaction of a haloaryl compound with an aryl amine does not make the end product of the instant application a different product from the Hung reference. Both Hung and applicant have an electroluminescent device comprising an organic luminescent material such as N-N'-bis-(1-naphthyl)-N-N'-diphenylbenzidine that is used in the hole-transporting layer. Also, both Hung and applicant have an electroluminescent device comprising tris(8-quinolinato) aluminum that is used in the luminescent layer. The administration of a live test to the device does not make the device a different EL device from the Hung reference. The Hung reference has the same components comprising the same materials as applicant. The organic electroluminescent material and device of the instant

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application is the same as the organic electroluminescent material and device of the Hung reference.

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hung et al., U.S. Patent Number 6,069,442.

Hung discloses an organic electroluminescent device comprising an anode, an organic hole transporting layer, an organic luminescent layer, an electron transporting layer and a cathode (see abstract and column 2, lines 1-9). Additionally, the reference discloses that the hole transporting layer comprises N-N'-bis-(1-naphthyl)-N-N'-diphenylbenzidine as per instant claim 8(see column 5, lines 12-15). Column 3, lines 42-60 of the Hung reference disclose that the luminescent layer comprises tris(8-quinolinato) aluminum as per the instant claims. The Hung reference does not disclose the initial luminescent attenuation. However, this is a physical property of the device that comprises N-N'-bis-(1-naphthyl)-N-N'-diphenylbenzidine for the hole transporting layer and tris(8-quinolinato) aluminum for the luminescent layer. The operating time in which the initial luminescences attenuates 10% would be expected to exceed 100 hours in a live test, as this would be inherent. Claim 1, 6-7 and 9 are product-by-process claims. Even though product-by-process claims are limited and defined by the process, determination of patentability is based on the product itself. The patentability of a product does

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not depend on its method of production. If the product in the product-by-process claims is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior art was made by a different process. See MPEP 2113. The purifying of the crude tertiary amine by sublimation or distillation by the reaction of a haloaryl compound with an aryl amine does not make the end product of the instant application a different product from the Hung reference. Both Hung and applicant have an electroluminescent device comprising an organic luminescent material such as N-N'-bis-(1-naphthyl)-N-N'-diphenylbenzidine that is used in the hole-transporting layer. Also, both Hung and applicant have an electroluminescent device comprising tris(8-quinolino) aluminum that is used in the luminescent layer. The administration of a live test to the device does not make the device a different EL device from the Hung reference. The Hung reference has the same components comprising the same materials as applicant. The organic electroluminescent material and device of the instant application is the same as the organic electroluminescent and device of the Hung reference. The Hung reference does not disclose that the tertiary aryl amine forming a triarylamine contains 0.5 weight percent or less of compound (A) possessing one less nitrogen atom forming triarylamines and or 1 weight percent or less of compound (B) possessing one more nitrogen atom forming diarylamino groups than the tertiary aryl amine. The weight percent of the compound (A) and/or (B) affects the purity of the triarylamine used in the hole transporting layer. However, this is an optimizable feature. Discovery of optimum values of a result effective variable involves only routine skill in the art in re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Therefore, it would have been obvious to one of ordinary skill to have a tertiary aryl amine containing 2 to 4 nitrogen atoms each forming a triarylamine, containing 0.5wt% or less of compound (A)

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possessing one less nitrogen atom forming triarylamines and/or or 1 wt% or less of compound  
(b) possessing one more nitrogen forming diarylamino groups than the tertiary aryl amine in  
order to have a hole transporting layer that contains N-N'-bis-(1-naphthyl)-N-N'-  
diphenylbenzidine with little impurities.

***Response to Arguments***

11. Applicant's arguments with respect to claims 1-7 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Camie S. Thompson whose telephone number is (571) 272-1530. The examiner can normally be reached on Monday through Friday from 7:30 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia H. Kelly, can be reached at (571) 272-1526. The fax phone number for the Group is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CYNTHIA H. KELLY  
SUPERVISORY PATENT EXAMINER  
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